

Remarks

The outstanding office action rejects a number of claims under §112. Claims 37, 39, 45 and 52 have been canceled. Claims 41 and 48 which refer to the exhausting step have been amended to eliminate reference to exhausting. It is believed that the §112 errors are therefore fully addressed. If the Examiner notes any additional errors of a §112 nature, he is invited to telephone the undersigned so that the matter can be promptly resolved.

The outstanding office action additionally rejects the claims as being obvious in light of various combinations of prior art references, most significantly, Farrell (US 3,709,644) and Gosdin (US 5,762,861) or Kurihara (US 5,612,067) and Yasuike (US 4,129,635). The application has been carefully reviewed and claims 13-16 and 23-39 have been canceled without prejudice to the filing of a continuation application and the remaining claims have been significantly amended.

It is respectfully submitted that the claims, as amended, are in condition for allowance. The claims, as amended, now define a mold cavity having an upstream end provided with a plastic supply passageway and a downstream end in which pressurized gas is injected. A spillover reservoir is provided off the supply passageway and is claimed in some of the dependent claims connected to the supply passageway by a valve. After the plastic is injected into the mold cavity and partially solidified, injecting a pressurized fluid in the downstream end of the mold cavity, causes the still fluid plastic in the core of the mold cavity to be expelled upstream through the supply passage and into the spillover reservoir.

This method of operation and the structure of the claimed system is significantly different than the prior art. Farrell, one of the primary references, has a valve in the plastic supply line to the mold enabling the plastic source to be disconnected from the mold cavity and the source of pressurized fluid connected and controlled by a hydraulic motor to maintain the desired internal pressure of the plastic within the mold during cooling. This minimizes shrinkage resulting from cooling so additional material is added to the mold

cavity to compensate for shrinkage loss. Farrell does not teach or suggest the use of a spillover cavity, nor is there a suggestion for making a hollow part.

The Gosdin reference relates to a method and apparatus for producing a hollow part utilizing spill cavities and by pushing some resin back into injection nozzle 3, high pressurized fluid is injected at one or more injection nozzles 7 located mid part. There is no teaching or suggestion to locate spill cavities in a supply passage on the upstream side of the mold cavity and locating the fluid injection nozzle at the downstream end of the cavity.

The Kurihara reference discloses a method and apparatus for blow molding a hollow part. The mold cavity is initially filled with plastic and then gas is injected at port 9 at a location generally near the supply passageway 5. The fluid plastic material in the core of the mold cavity is expelled into a spill chamber 7 at the downstream end of the mold cavity. The connection between the spill cavity and the mold cavity is regulated by a valve 33. Like the claimed apparatus and method, Kurihara does not locate the spill reservoir on the upstream end of the old cavity branched off of the supply passageway and similarly, the pressurized fluid used to expel the fluid plastic core of the part to be formed, is not injected at the downstream end of the cavity as claimed.

It is not believed that it would be obvious to modify Kurihara in the manner disclosed and claimed by the present applicant. By injecting pressurized fluid at the downstream end of the cavity and expelling plastic upstream through the supply passageway to an attached spill reservoir, there is no need for a third opening in the mold to introduce fluid as is also the case in Gosdin.

It is respectfully submitted that references to methods of molding a part with a foamable synthetic resin producing a solid skin and a central foam interior, are not analogous art and do not produce a similar hollow plastic finished article. Even if this process was used to create a hollow article as illustrated in the intermediate staged article in Figure 3b of the Yasuike, this article would be formed without expelling the fluid central core of the mold cavity after it was filled into a spill reservoir. Rather, it was formed by introducing gas or

water into a foam filled cavity. This system and its method of operation is totally different since no material is being expelled, rather the foam cells of the core are simply being compressed.

It is respectfully submitted that the application is in condition for allowance as amended. If the Examiner notes any additional §112 errors or would like to discuss the above claim amendments, he is invited to telephone the undersigned.

Respectfully submitted,

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